

**UNITED STATES DEPARTMENT OF COMMERCE****Patent and Trademark Office**

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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
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| 08/636,069 | 04/22/96 | SANDRU | G M1CR155095-U |

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EXAMINER
WHIPPLE, M

ART UNIT
2813

PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

| | | |
|------------------------|--------------------------------------|--------------------------------------|
| Advisory Action | Application No. 08/636,069 | Applicant(s) Sandhu et al. |
| | Examiner Matthew Whipple | Group Art Unit 2813 |

THE PERIOD FOR RESPONSE: [check only a) or b])

a) expires 3 months from the mailing date of the final rejection.

b) expires either three months from the mailing date of the final rejection, or on the mailing date of this Advisory Action, whichever is later. In no event, however, will the statutory period for the response expire later than six months from the date of the final rejection.

Any extension of time must be obtained by filing a petition under 37 CFR 1.136(a), the proposed response and the appropriate fee. The date on which the response, the petition, and the fee have been filed is the date of the response and also the date for the purposes of determining the period of extension and the corresponding amount of the fee. Any extension fee pursuant to 37 CFR 1.17 will be calculated from the date of the originally set shortened statutory period for response or as set forth in b) above.

Appellant's Brief is due two months from the date of the Notice of Appeal filed on _____ (or within any period for response set forth above, whichever is later). See 37 CFR 1.191(d) and 37 CFR 1.192(a).

Applicant's response to the final rejection, filed on Jan 28, 1999 has been considered with the following effect, but is NOT deemed to place the application in condition for allowance:

The proposed amendment(s):

will be entered upon filing of a Notice of Appeal and an Appeal Brief.

will not be entered because:

they raise new issues that would require further consideration and/or search. (See note below).

they raise the issue of new matter. (See note below).

they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal.

they present additional claims without cancelling a corresponding number of finally rejected claims.

NOTE: _____

Applicant's response has overcome the following rejection(s):

The 35 USC 132 rejection is overcome.

Newly proposed or amended claims _____ would be allowable if submitted in a separate, timely filed amendment cancelling the non-allowable claims.

The affidavit, exhibit or request for reconsideration has been considered but does NOT place the application in condition for allowance because:

The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.

For purposes of Appeal, the status of the claims is as follows (see attached written explanation, if any):

Claims allowed: _____

Claims objected to: _____

Claims rejected: 1-30

The proposed drawing correction filed on _____ has has not been approved by the Examiner.

Note the attached Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

Other *The amendment has been entered on the basis that claim 30 will be regrouped with claims 1, 23, 25, and 26 in the 35 USC 112 second paragraph and claims 1-24 and 26 in the 35 USC 112 first paragraph and 35 USC 103(a) rejections.*

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Comments to Advisory Action

1. Applicant's claimed embodiment is not enabled by the disclosure. Applicant's disclosure clearly states that, "The reaction volume of the gases that is exposed to optical excitation in this process is meant to describe the volume of gas located within a chemically reactive distance of the substrate . . . The reactant gases in the reaction volume are referred to as taking part in heterogeneous chemical reactions, rather than homogeneous reaction that take place in the gas volume in the rest of the chamber". Wolf defines a heterogeneous reaction as that which takes place at or very near the surface of the substrate. It is well known that such reactions would occur within the boundary layer at the surface of the substrate, where there is very little or no gas flow, and the reactants diffuse to the surface. This boundary layer would be angstroms, or nanometers thick. Applicant disclosed light source is a UV lamp. Applicant has further taught and claimed that the lamp may be shined on this heterogeneous gas volume without directing photons at the substrate. The question then arises, how does one direct light at a gas volume that is within nanometers of the surface without directing it at the substrate surface using a diffuse light source, such as a UV lamp? Applicant has failed to explain how this would be accomplished. Applicant has instead argued that the rejection mischaracterizes the nature of the chemical reaction in requiring reaction with the surface of the substrate. This is not true. Applicant's disclosure clearly teaches the gas volume to be that where reactions take place within a chemically reactive distance, which would be consistent with heterogeneous reactions and applicant's preferred embodiment directs the light at the substrate. The suggestion that the light need not be

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directed at the substrate is mentioned in passing and there is no explanation to enable one skilled in the art as to how this embodiment could be performed. Therefore, the examiner holds that the embodiment is not enabled by the disclosure.


Charles Bowers
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MHW
2/17/99